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Remarks:

Reconsideration of the application is requested.

Claims 1-5 and 7-15 remain in the application. Claims 1-5, 7-10, and 15 are subject to examination. Claims 10-14 have been withdrawn from examination. Claim 1 has been amended. A marked-up version of the claim is attached hereto on a separate page. Claim 6 has been canceled.

In item 3 on page 2 of the above-identified Office Action, claim 6 has been rejected as being indefinite under 35 U.S.C. § 112, second paragraph.

This rejection is moot, because claim 6 has been canceled herewith.

In item 5 on page 2 of the above-identified Office Action, claims 1-4, 7-10, and 15 have been rejected as being unpatentable over Kobayashi et al. (JP 02-248393) in view of Holcombe et al. (US 5,443,892) under 35 U.S.C. § 103(a).

The rejection has been noted and claim 1 has been amended in an effort to even more clearly define the invention of the instant application. Support for the changes is found as follows: for the coating taking place in a gaseous atmosphere containing hydrogen on page 9, lines 18-19, for part of the

surface provided with a metal carbide layer serving as support for the substrate to be coated in Figs. 1 and 2 and the corresponding description, and for the metal carbide layer being inert relative to the hydrogen of the gaseous atmosphere on page 12, line 26 to page 13, line 1, of the specification of the instant application. No new matter is believed to be added.

The Kobayashi et al. reference discloses a susceptor for a vapor growth device, containing a carbon main body 11 and carbon insertion members 12 for carrying samples 20. The main body has holes for holding the insertion members.

The Holcombe et al. reference discloses graphite articles, such as crucibles 10, for use in high temperature metallurgical processes. The articles are provided with a multiple-layer coating 14 for inhibiting carbon diffusion from the graphite into the molten metal. The innermost layer 16 is made from a "carbide-forming metal" with a thickness adequate to intercept carbon diffusing from the graphite crucible during the melting operations. The intercepted carbides are converted to carbides within the metal layer. The next innermost layer 18 is formed of a metal-refractory oxide. The third layer 20 also is formed of a ceramic or refractory metal oxide.

Applicants respectfully submit that the proposed combination of Holcombe et al. and Kobayahsi et al. would not be made by one skilled in the art to which the invention pertains, because Holcombe et al. describe a container for a melt metallurgical process and Kobayashi et al. describe a susceptor for a gas-phase method. These are two distinctly different processes and applications. According to claim 1, the susceptor for the substrate coating is disposed in a hydrogen containing gaseous atmosphere; it is not used for a melting process as disclosed in Holcombe et al. Applicants further submit that because the claimed environment in which the coating takes place is distinctly different from that disclosed by Holcombe et al., one of ordinary skill in the art would not consider combining Holcombe et al. and Kobayashi et al. as suggested by the Examiner.

Furthermore, applicants want to again emphasize that Holcombe et al. do not disclose a metal carbide layer. The reference discloses a metal layer. This is described in Holcombe et al., for example in col. 4, line 6, col. 5, line 7, col. 5, line 14, and col. 5, line 61. This is an important distinguishing feature of the claimed invention over the prior art, which the Examiner has not addressed in the final Office Action.

During the course of the melting process in Holcombe et al., at best a formation of metal carbides can take place at the border of the metal layer 16 to the graphite crucible. This results from an interception of carbon which diffuses out of the graphite crucible into the metal layer 16 (see col. 4, lines 40 et seq.). Consequently, a graphitization can take place at the boundary area between the metal layer 16 and the graphite crucible. It is respectfully submitted that the Examiner's statement relating to this made at the top of page 5 of the Office Action, that Holcombe et al. disclose that carbon diffusion is stopped by the metal carbide is not correct. Instead, Holcombe et al. disclose a catching of the carbon-atoms which have been outdiffused in the metal layer 16 due to the graphitization. Clearly, the non-graphitized metal layer 16 provides the "**interception protection**" in Holcombe et al., and not the metal carbide layer which may be subsequently formed by interception.

Furthermore, contrary to Holcombe et al., the metal carbide coating of the present claimed invention does not mainly serve the purpose of preventing a carbon diffusion from the graphite crucible. Instead, on the one hand, an ejection of contaminants (such as aluminum, titanium, boron) from the graphite is prevented (see page 5, lines 9-10, page 6, lines 7-9, and page 3, lines 3-5 of the instant specification). A further important difference over Holcombe et al. is that the

coating is supposed to protect the susceptor from a decomposition by the hydrogen in the gaseous atmosphere (see, for example, page 12, line 22, to page 13, line 2 of the instant specification). If such decomposition is prevented, the susceptor can be used again, which increases the efficiency of the use of the coating. Claim 1 recites the hydrogen-containing gaseous atmosphere and that the metal carbide coating is inert compared to the hydrogen of such atmosphere. The prior art does not disclose or suggest these claimed features.

Additionally, in the case of a SiC coating, an outdiffusion of carbon from the graphite crucible would not produce contamination in the same sense as the present invention (see page 3, lines 3-5 of the instant specification, disclosing, for example, aluminum, titanium and boron). Instead, besides silicon, the necessary element for the SiC epitaxial process would then be carbon. This is also an important difference as compared to Holcombe et al., in which the presence of carbon in the melt process always represents an undesirable contaminant.

Neither Kobayashi et al. nor Holcombe et al. disclose or teach providing "a metal carbide layer of a given thickness forming at least a portion of said surface (of an insert of a susceptor), said portion supporting said substrate, said metal

carbon layer being inert with respect to hydrogen of the gaseous atmosphere" (parenthetical added) in which the coating of the substrate takes place, as recited in claim 1 of the instant application.

In summary, applicants submit that claim 1 is not suggested by a combination of Holcombe et al. and Kobayashi et al., individually or in combination.

In item 6 on page 3 of the above-identified Office Action, claims 1-4, 7, 9-10 and 15 have been rejected as being unpatentable over Kobayashi et al. (JP 02-248393) in view of Yamaga et al. (US 5,614,447) under 35 U.S.C. § 103(a).

The previous discussion, arguments, and deficiencies of Kobayashi et al. are equally applicable to the rejection of these claims. As will be apparent, Yamaga et al. does not overcome these deficiencies.

The Yamaga et al. reference discloses a method for heat treating a semiconductor substrate 1, an impurity implantation region 2 where impurities are implanted on the surfaces of the substrates, a susceptor 3 adjacent one side of region 2, a protection plate 4 adjacent a far side of substrate 1, and an absorbing film 5 for infrared rays coated on the susceptor and protection plate. The film may be a carbon film.

The combination of Kobayashi et al. and Yamaga et al. is considered to be improper for the reasons discussed below.

In Yamaga et al., a layer which absorbs infrared rays is applied on a base body, either a susceptor or a protective plate (see the Abstract, and col. 4, lines 15-25). The susceptor as well as the protective plate are of a material selected from the group of gallium nitride, aluminum nitride and boron nitride (see the Abstract, col. 4, lines 17-20, as well as the claims). The coating is carbon or a metal carbide. In Yamaga et al., the coating exclusively serves the purpose of absorbing infrared rays (see col. 5, line 57 to col. 6, line 3). A person of ordinary skill in the art would provided such a coating in Kobayashi et al. only if he had a good technical reason to improve the absorption of infrared rays and considered such improvement to be technically necessary. Such is not the case, because Kobayashi et al. use carbon which already has good absorption qualities of infrared rays. Yamaga et al. also preferably use carbon for the coating (see, for example, col. 5, line 58). An additional metal carbide coating therefore, would not be necessary in Kobayashi et al. to improve the absorption behavior of infrared rays. The coating in Yamaga et al. is necessary because the nitride material which is used for the susceptor and for the protective plate does not have a sufficient

absorption behavior. It is not required in Kobayashi et al., who already have good absorption of infrared x-rays because of the carbon that is used.

In view of the foregoing, a person skilled in the art would only have provided the coating disclosed in Yamaga et al., if Kobayashi et al. disclosed that it had poor or insufficient absorption. This, however, is not the case, because Kobayashi et al. use graphite which has a high conductivity (see carbon insertion member 12). A person of ordinary skill in the art would not have had any reason to provide the coating which is disclosed in Yamaga et al. for the susceptor in Kobayashi et al. Using the coating of Yamaga et al. in Kobayashi et al. would be superfluous and not necessary, because the graphite which is being used already has a very high thermal absorption. The Examiner has not refuted or even mentioned this distinguishing argument which was previously presented on pages 9-10 in applicants last response. Applicants again respectfully submit that the Examiner's proposed combination of references is based on a hindsight reconstruction of the prior art and is improper for the reasons discussed above.

Neither Kobayashi et al. nor Yamaga et al. disclose "a metal carbide layer of a given thickness forming at least a portion of said surface, said portion supporting the substrate, said metal carbon layer being inert with respect to the hydrogen of

the gaseous atmosphere", as recited in claim 1 of the instant application.

In item 7 on page 3 of the above-identified Office Action, claim 5 has been rejected as being unpatentable over Kobayashi et al. in view of Holcombe et al. as applied to claim 1 and further in view of Drage (US 4,793,975) and Doi et al. (US 4,507,189) under 35 U.S.C. § 103(a).

The combination of Kobayashi et al. and Holcombe et al. as applied to these claims is believed to be improper for the same reasons advanced above relative to claim 1 from which claim 5 depends.

Further, the use of the Drage and Doi references to overcome the deficiencies of Kobayashi et al. and Holcombe et al. also is considered improper. The plasma reactor of Drage and the vapor deposition process of Doi have absolutely no relation to each other or to the disclosures of the primary references, Kobayashi et al. and Holcombe et al.. In order to reject these claims, the Examiner has compiled a piecemeal reconstruction of the prior art based purely on hindsight. Essentially, after becoming aware of the claimed preferred embodiment, the Examiner has sought various isolated teachings and disclosures in the prior art to arrive at the claimed embodiment. It is submitted and again emphasized that there

is no logical basis for the proposed combination of these references.

It is accordingly believed to be clear that none of the references, whether taken alone or in any combination, either show or suggest the features of claim 1. Claim 1 is, therefore, believed to be patentable over the art. The dependent claims are believed to be patentable as well because they all are ultimately dependent on claim 1.

In view of the foregoing, reconsideration and allowance of claims 1-5, 7-10 and 15 are solicited.

In the event the Examiner should still find any of the claims to be unpatentable, counsel would appreciate receiving a telephone call so that, if possible, patentable language can be worked out. In the alternative, the entry of the amendment is requested, as it is believed to place the application in better condition for appeal, without requiring extension of the field of search.

If an extension of time for this paper is required, petition for extension is herewith made.

Please charge any fees that might be due with respect to Sections 1.16 and 1.17 to the Deposit Account of Lerner and Greenberg, P.A., No. 12-1099.

Respectfully submitted,

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For Applicants

FDP/tk

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Version With Markings to Show Changes Made:

Claim 1 (amended). A device for mounting a substrate to be coated in a hydrogen containing gaseous atmosphere, comprising:

a susceptor for supporting a substrate to be coated in the hydrogen containing gaseous atmosphere;

said susceptor including an insert having a surface; and

a metal carbide layer of a given thickness forming at least a portion of said surface, said portion supporting the substrate, said metal carbon layer being inert with respect to the hydrogen of the gaseous atmosphere.